

WHAT IS CLAIMED IS

1. A cured non-woven fiber mat comprising, by weight, from about 60 to about 95% fibers containing from about 0.001 to about 15 % of a polysiloxane; said fibers fixedly distributed in from about 40 to about 5 % of a formaldehyde type binder containing between about 0.1 and about 20% of a crosslinked styrene/(meth)acrylic polymer binder modifier
2. The mat of claim 1 wherein said fibers are fibers of glass, wood, polyethylene, polypropylene, polyester, Nylon, Orlon® or a mixture thereof.
3. The mat of claim 2 wherein the fibers are glass fibers having an average length of from about 3 to about 130 mm and an average diameter of from about 5 to about 25 micrometers.
4. The mat of claim 1 wherein the formaldehyde type binder contains formaldehyde and a compound selected from the group consisting of urea, phenol, resorcinol, melamine or a mixture.
5. The mat of claim 4 wherein the formaldehyde type binder is urea/formaldehyde.
6. The mat of claim 1 wherein the styrene/acrylic polymer is crosslinked with a polyfunctional, nitrogen-containing crosslinking agent .
7. The mat of claim 6 wherein between about 0.05 and about 10% of the styrene/acrylic polymer is crosslinked.

8. The mat of claim 7 wherein between about 1 and about 5% of the styrene/acrylic polymer is crosslinked.

9. The glass fiber mat of claim 1 wherein the fibers are glass fibers and the mat comprises, by weight, from about 68 to about 92% glass fibers containing from about 0.01 to about 10% polysiloxane; said fibers fixedly distributed in from about 8 to about 32% of urea/formaldehyde binder which contains between about 0.5 and about 15% of a styrene/(meth)acrylic polymer which polymer is from about 0.05 to about 10% crosslinked.

10. The mat of claim 1 wherein said polysiloxane is poly(dimethylsiloxane).

11. The mat of claim 1 wherein the polysiloxane is between about 0.1 and about 2% by weight of said modified binder.

12. The mat of claim 1 wherein said mat is a roofing material and is coated on at least one surface with asphalt.

13. The mat of claim 12 wherein said mat is a glass mat employed in a roofing shingle.

14. The process for making the cured polysiloxane containing non-woven fiber mat of claim 1 which comprises:

(a) preparing an aqueous slurry of said fibers and removing excess water to form a wet fiber web;

(b) separately preparing an aqueous dispersion or emulsion of a formaldehyde type binder containing between about 0.1 and about 20 wt.% of a crosslinkable styrene/(meth)acrylic polymer modifier for said binder;

(c) adding between about 10 and about 40 wt.% , of (b), to (a);

(d) adding a polysiloxane to said fiber web in an amount sufficient to provide a concentration of said polysiloxane in the mat of between about 0.001 and about 15 wt.% and

(e) curing the resulting mat at a temperature between about 200° and about 400°C.

15. The process of claim 14 wherein the cured mat is subsequently coated on at least one surface with asphalt .

16. The process of claim 14 wherein said fibers are fibers of glass, wood particles, polyethylene, polypropylene, polyester, Nylon or Orlon®.

17. The process of claim 16 wherein the fibers are glass fibers having an average length of from about 3 to about 130 mm and an average diameter of from about 5 to about 25 micrometers.

18. The process of claim 14 wherein the formaldehyde type binder is urea/formaldehyde.

19. The process of claim 14 wherein the polysiloxane is added to the web before, after or during the addition of modified binder.

20. The process of claim 14 wherein at least a portion of the polysiloxane is added to mat after drying or curing.

21. The process of claim 14 wherein the polysiloxane is poly(dimethylsiloxane).

22. An asphalt coated roofing shingle comprising a cured, non-woven glass fiber mat of by weight, from about 0.001 to about 15% polysiloxane; from about 60 to about 95% glass fibers distributed in from about 40 to about 5% of a urea/formaldehyde binder containing between about 0.1 and about 20% of a crosslinked styrene/(meth)acrylic polymer.

23. The roofing shingle of claim 22 wherein the mat comprises, by weight, from about 0.01 to about 10 % polysiloxane; from about 68 to about 92% glass fibers and from about 8 to about 32% urea/formaldehyde binder containing between about 0.05 and about 15% styrene/(meth)acrylic polymer modifier which is 0.05 to 10% crosslinked.

24. The roofing shingle of claim 22 wherein polysiloxane is poly(dimethylsiloxane).

25. The roofing shingle of claim 22 wherein the polysiloxane is between about 0.1 and about 2% of said modified binder.

26. The roofing shingle of claim 22 wherein said styrene/(meth)acrylic polymer is from about 1 to about 5% crosslinked.

27. An asphalt coated roofing sheet comprising a cured, polysiloxane containing, non-woven fiber glass mat of, by weight, from about 0.001 to about 15% polysiloxane; from about 60 to about 95% fibers distributed in from about 40 to about 5% of said modified urea/formaldehyde binder.

28. The asphalt coated roofing sheet of claim 27 wherein the mat comprises, by weight, from about 0.01 to about 10% polysiloxane; from about 68 to about 90% glass fibers and from about 10 to about 32% urea/formaldehyde binder containing between about 0.05 and about 15% crosslinked styrene/(meth)acrylic polymer.

29. The asphalt coated roofing sheet of claim 27 wherein the polysiloxane is poly(dimethylsiloxane).

30. The asphalt coated roofing sheet of claim 27 wherein the polysiloxane is between about 0.1 and about 2 wt.% of said modified binder.

31. The asphalt coated roofing sheet of claim 27 wherein said styrene/(meth)acrylic polymer is between about 0.5 and about 5 % crosslinked with acrylonitrile.

32. An uncured wet web mixture comprising from about 60 to about 95 wt.% glass fibers containing from about 0.001 to about 15 wt% of a polysiloxane and between about 40 and about 5 wt.% of a formaldehyde type binder containing between about 0.1 and about 20 wt.% of a crosslinked styrene/(meth)acrylic polymer for said binder.